Pavement Management & Measure I Community Workshop

September 13, 2017

PRESENTATION GOALS

- Overview
- Review Pavement Basics
- Pavement preservation principles
- Belmont Streets - Current Conditions & Trends
- Options for Moving Forward
- Prioritization Discussion/Feedback
- Conclusion

Community Engagement

Goal of Public Partnership and Communication between Community and the City.

- Council Priority to Address City's Deferred Infrastructure Needs

- 2015/16 - Extensive Public Outreach Identifying Community Priorities
  - Fixing Streets
  - Improving City's Stormwater/Drainage System

- November 2016 – Voters Approved the Belmont Streets and City Services Measure I
  - April 2017 – Tax Went Into Effect
  - Will Begin Receiving Additional Tax Revenues in 2017
  - Measure I Citizen Advisory Committee Appointed by the City Council

- April 6th State Funding Actions: Road Maintenance and Rehabilitation Act (RMRA)

Community Engagement

**Goal of Public Partnership and Communication between Community and the City.**

- June 2017 Council Provided Direction for Community Engagement and Fully Committing Measure I Funding to Infrastructure

- City is Working on a Multi-year Maintenance and Rehabilitation Plan
  - Balance Funding vs Needs
  - Based on Available Funding/Produce Most Cost Effective Repairs Available.
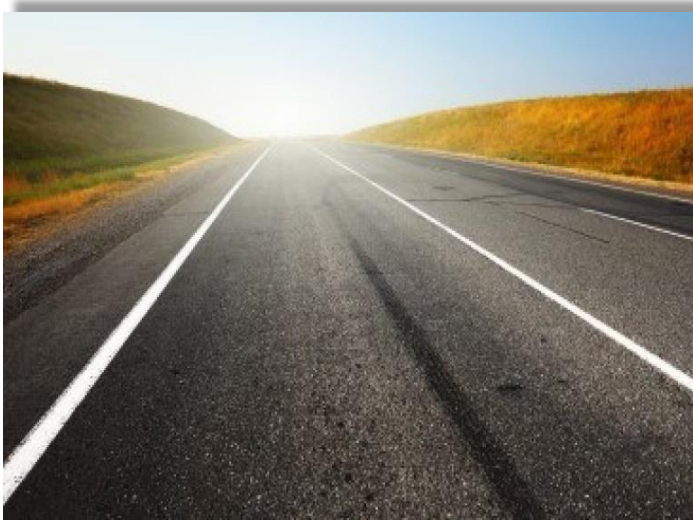
PAVEMENT 101

Wheel Loads
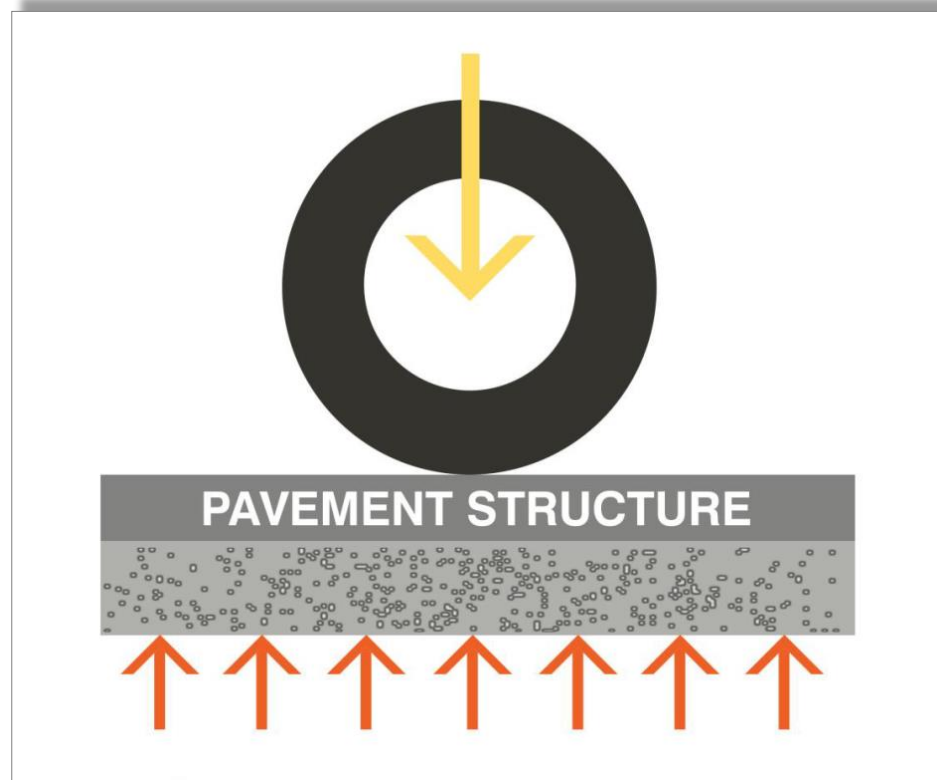
Pavement Deterioration

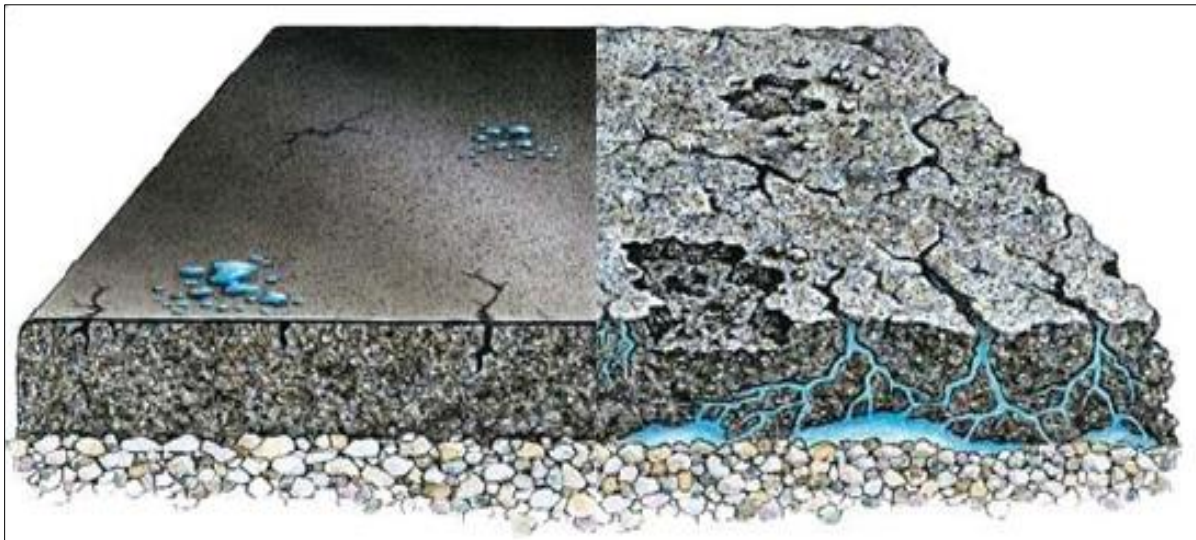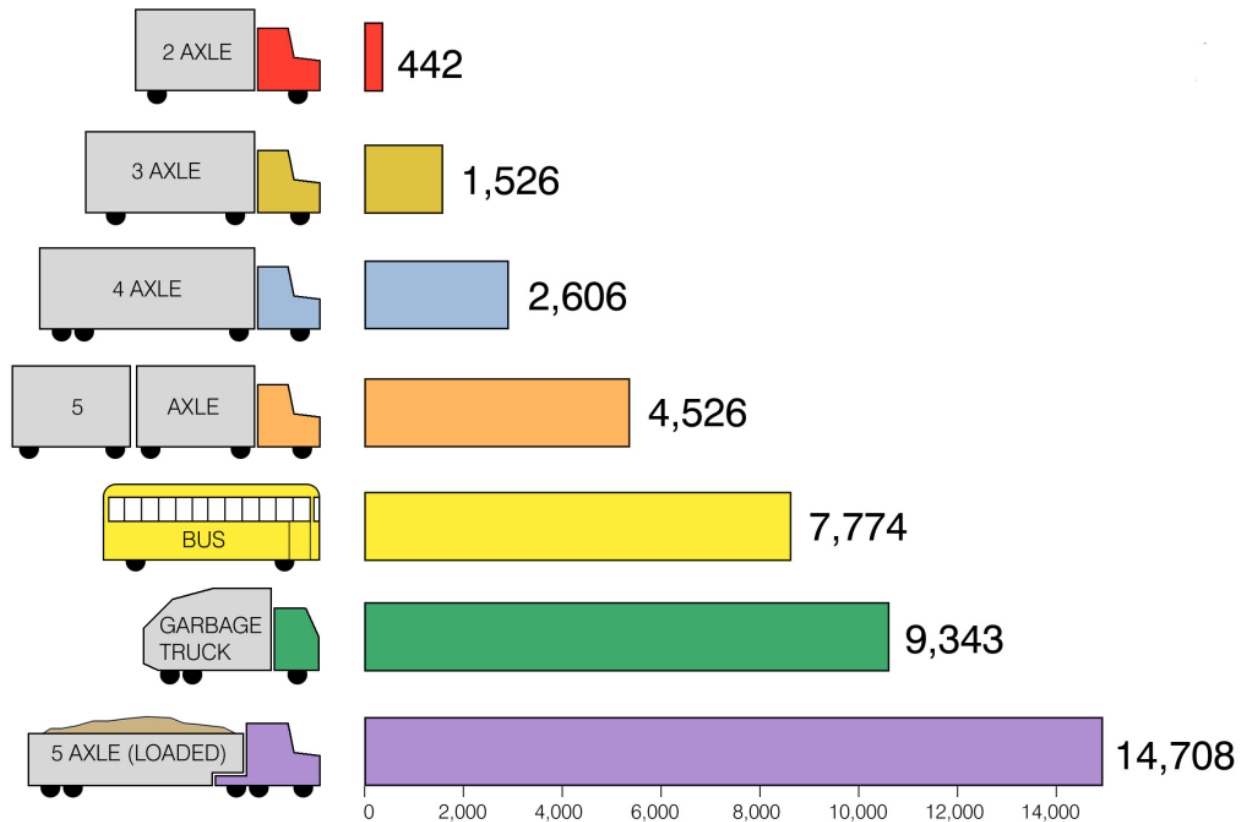Asphalt concrete deteriorates in two ways:

Oxidizing effects of sun and water

Fatigue from heavy wheel loads

The Impact of Sun and Water

COMPARATIVE VEHICLE PAVEMENT STRESS

(S-10 BLAZER = 1 VEHICLE UNIT)

Vehicle	Stress
2 AXLE	442
3 AXLE	1,526
4 AXLE	2,606
5 AXLE	4,526
BUS	7,774
GARBAGE TRUCK	9,343
5 AXLE (LOADED)	14,708

PAVEMENT 101

CITY OF BELMONT
CALIFORNIA

Common Pavement Distresses

Weathering
or Raveling

Transverse or
Longitudinal
Cracking

Block
Cracking

Alligator
Cracking

CALIFORNIA
CITY OF BELMONT

Pavement Deterioration Cycle

Deterioration curve is determined by loading, pavement quality, climate, etc.
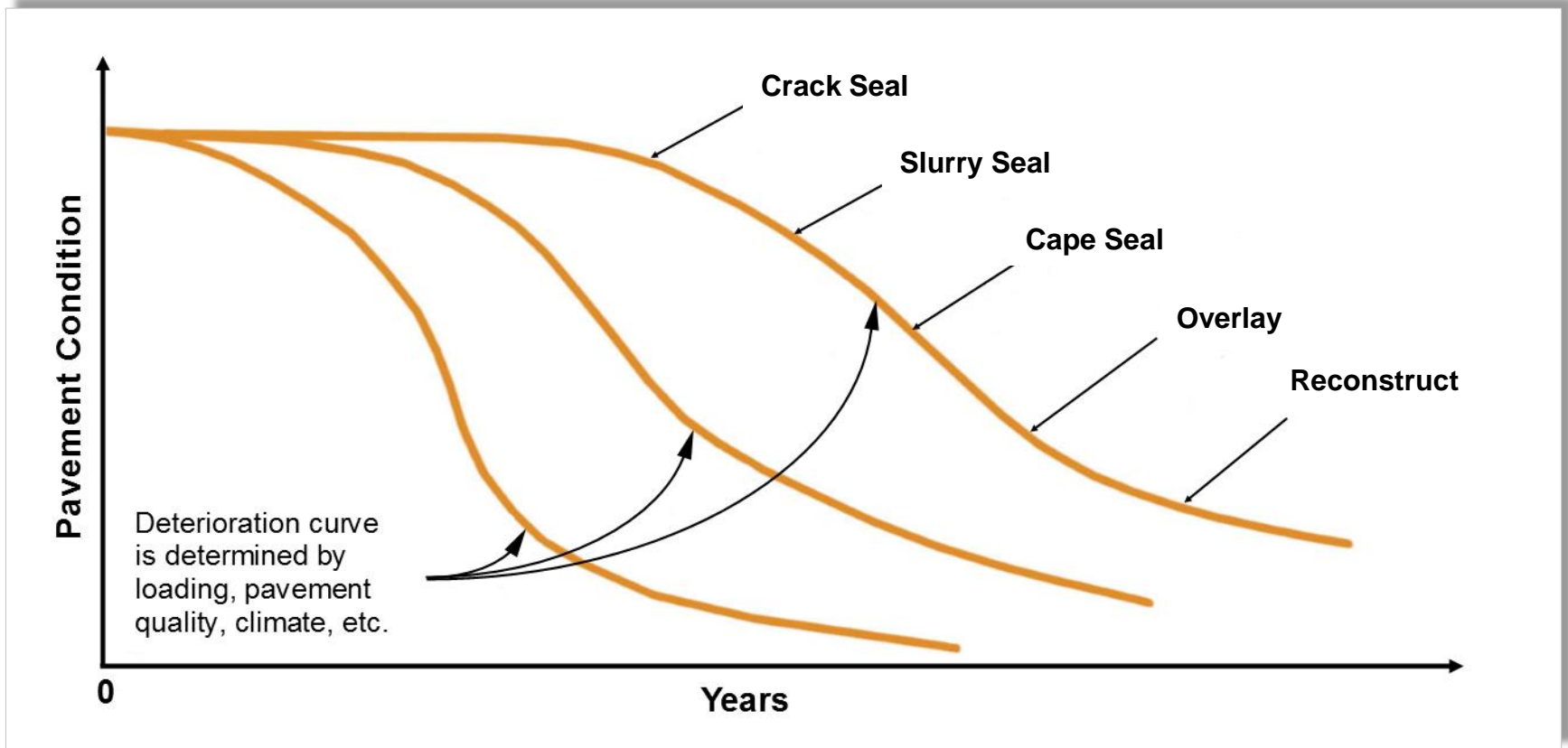
Pavement Condition

Years

0
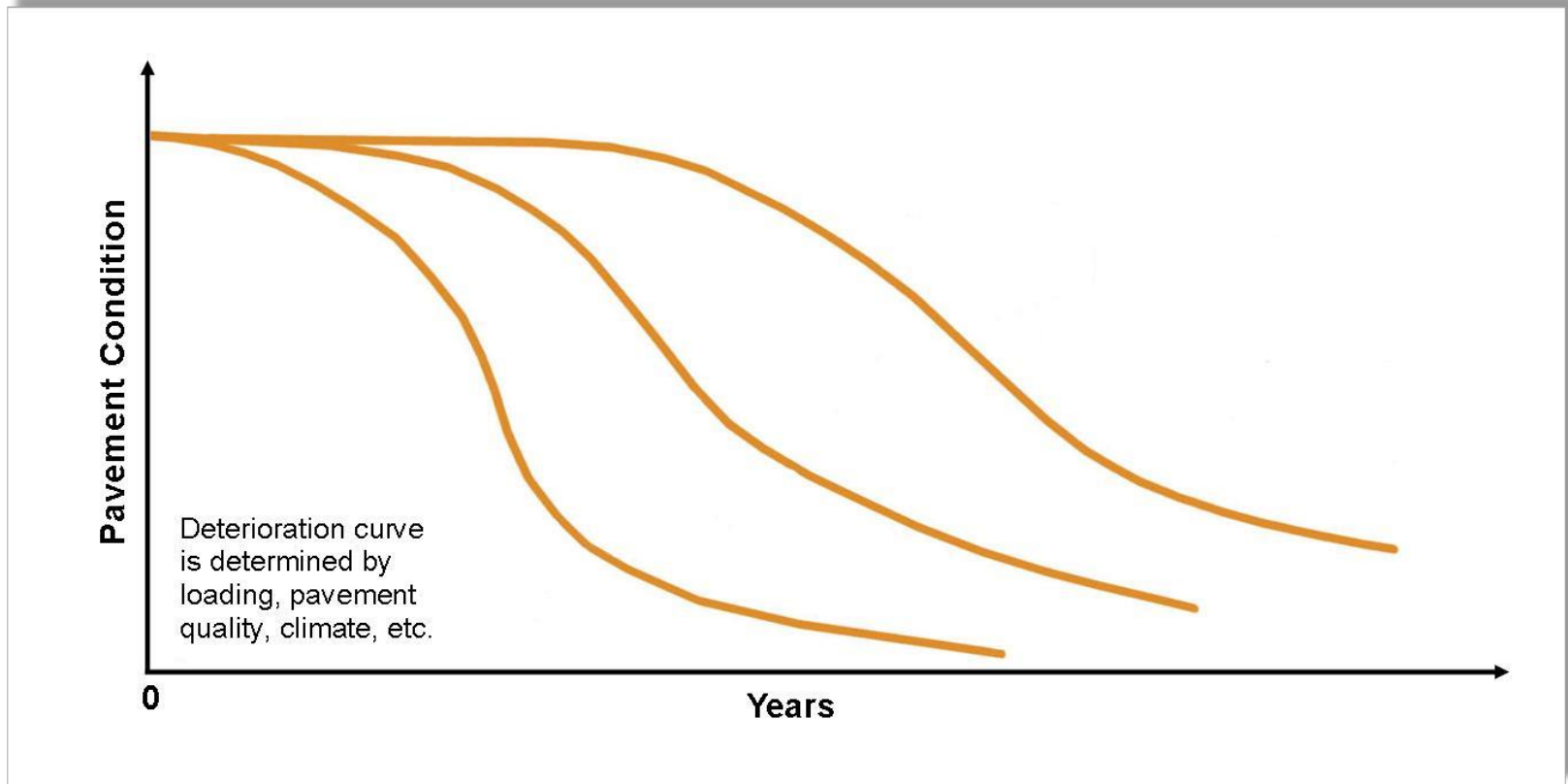
PAVEMENT PRESERVATION PRINCIPLES

Applying the **RIGHT TREATMENT**
to the **RIGHT PAVEMENT**
at the **RIGHT TIME**
using the **RIGHT MATERIALS**

Pavement Preservation Timing

Crack Sealing

# Slurry Seal

Overlay

Reconstruct

Good Pavement Management

- **Best-First "Top Down" Management:** focuses maintenance and rehabilitation on the best streets in the system. Interim procedure.

- **Worst-First "Bottom Up" Management:** focuses maintenance and rehabilitation on the worst streets in the system. Interim procedure.

- **Critical-Point Management:** focuses maintenance and rehabilitation on streets above rather than below a critical PCI. Most economical in the long run.

Pavement Condition vs. Maintenance / Rehabilitation Cost
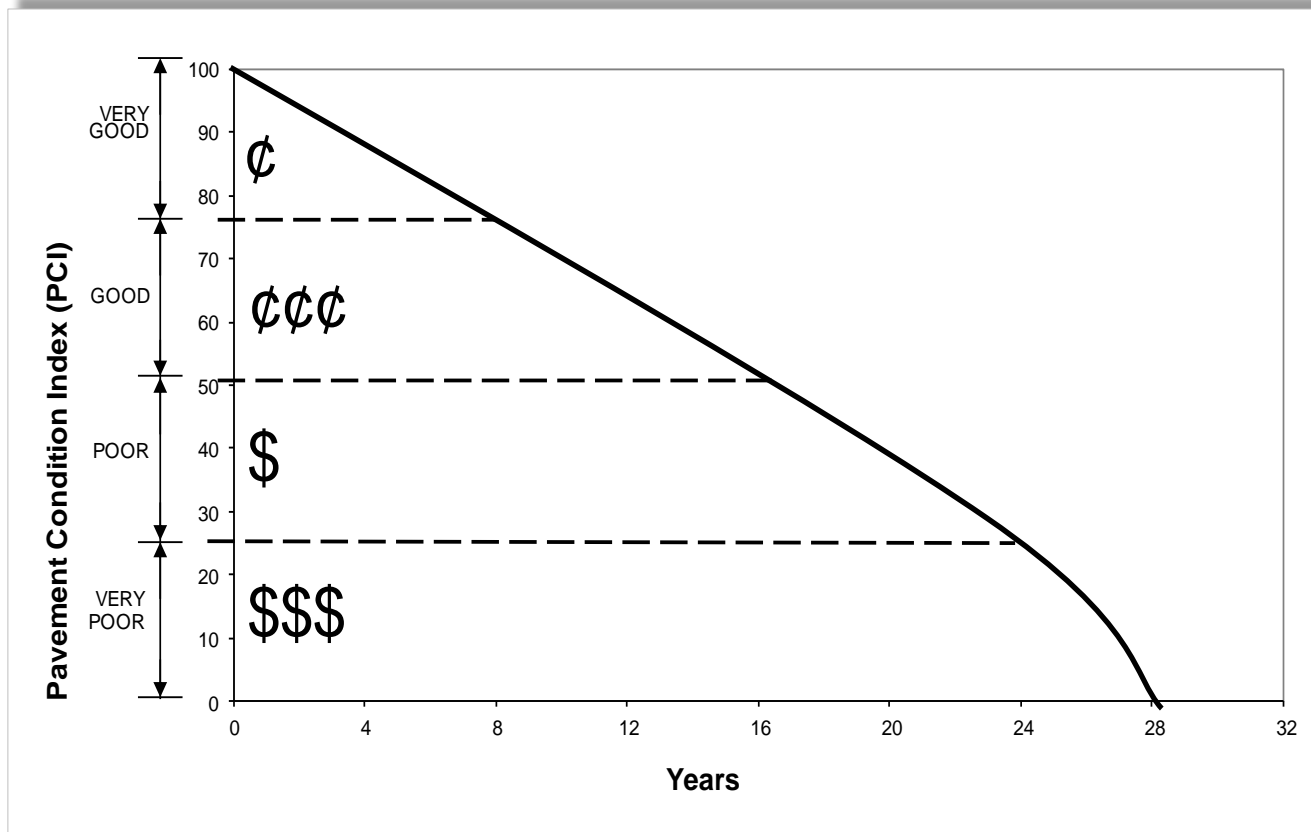
PAVEMENT MANAGEMENT PROGRAM

What is a Pavement Management Program?

- Budgeting tool
- Inventory tool
- Record of pavement conditions
- Identifies candidate streets for potential repair and maintenance

A PMP in NOT a detailed design tool

Evaluating Common Pavement Distresses

- Alligator cracking
- Block cracking
- Distortions
- Longitudinal / transverse cracking
- Patches
- Rutting / depressions
- Weathering / raveling

Evaluating Pavement
The Pavement Condition Index (PCI)

PCI Range	Condition
100 - 91	Excellent
90 - 71	Good
70 - 51	Fair
50 - 31	Poor
30 - 0	Failed
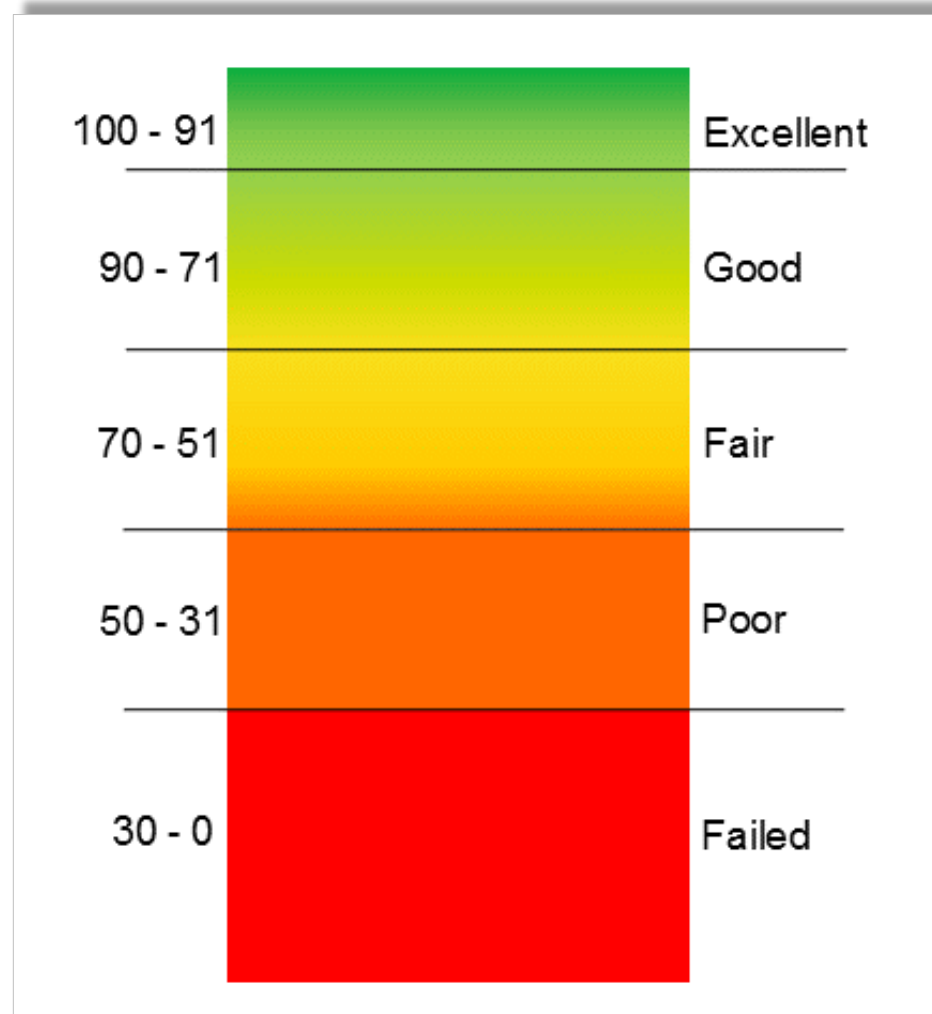
PAVEMENT MANAGEMENT

PCI = 0

PAVEMENT MANAGEMENT

Road Facts

ROAD CLASSIFICATIONS

Arterials — 13 Lane Miles

Collector — 40 Lane Miles

Local — 84 Lane Miles

Deferred Infrastructure Needs
STREETS

Streets $38M

					2014 Average PCI Score				Pavement Maintenance		
Current Level of Service by County and Jurisdiction											
	Total Lane Miles	Total Centerline Miles	% Poor or Failed	% Excellent or Very Good	Arterial	Collector	Residential	Network	Arterial	Collector	Residential
Belmont	137.7	69.0	46%	12%	67	60	52	56	$3,821,355	$12,980,349	$21,337,958

City of Belmont System Data (From 2014)

- System Size
  - ✓ 69.04 centerline miles
  - ✓ 9,537,416 square feet of pavement

- Systemwide average weighted PCI of 56

- Replacement value of $102,734,000

Street Maintenance

	Fiscal Year 14/15	Fiscal Year 15/16	Fiscal Year 16/17	3 Year Total
Paving	516 Tons	470 Tons	607 Tons	1,593 Tons
Pot Holes Filled	264	321	517	1,102
Crack seal	45,607 Feet	37,163 Feet	34,529	117,299 Feet
USA Mark Outs	730 Marked	674 Marked	974 Marked	2,378 Marked

Compliance and Other Street Related Requirements

- ADA
- "Complete Streets"
- Bike Facilities
- Green Infrastructure – Drainage
- Signage & Stripping

Budget

- Measure I- $1M/year

- RMRA- $160K/ FY 17/18, $478K in FY 18/19

- General Fund Surplus

Street Selection Process

1. Preliminary list base on most cost effective use of funds available in next 5 years with the use of MTC StreetSaver Pavement Management Program

2. Prioritize by use – most used streets higher priority than lower used streets
    –   Safe Routes to School
    –   Routes to Business and Commercial Centers
    –   Average Daily Traffic (ADT)

3. Cross-checked against planned utility work and future development
   - Streets with planned work that would impact pavement are coordinated with planned work or scheduled after the conflicting work is completed

4. Streets are grouped by similar treatment into proposed construction packages based on available funds.

5. Process may be adjusted if the City is successful in securing State or Federal Funds that must be used in specific areas or classification of streets.

Potential Selection Criteria

- Worst Streets First

- Residential Streets

- Safe Routes to Schools

- Other?

SUMMARY

- ## <u>Good News</u>
  - **Availability of Measure I & RMRA Funding**
  - **Constantly looking for grant opportunities**
  - **Constantly evaluating pavement maintenance technologies and methods (stretch existing maintenance dollars)**
  - **aggressive pavement crack sealing and patching program**
  - **Pavement goal is <u>best management practices</u> to maximize existing $$**
  - **Targeted maintenance activities of the "At-Risk" streets**
  - **Utility Coordination to minimize pavement impacts.**

Department of Public Works